

PROCEEDINGS OF LEARNED SOCIETIES.

ROYAL SOCIETY OF EDINBURGH.

This Society held its first ordinary meeting for the season on Monday the 2nd of December, 1844.

Read—1. "Account of the late Earthquakes at Demerara." By N. H. Campbell, Esq. Communicated by M. Pouton, Esq.

2. "On the Existence of an Electrical Apparatus in the Flapper-Skate and other Rays." By Dr. Stark.

In this communication the author described a very peculiar organ, which from its situation and structure he believed to be an electrical organ. It ran along each side of the tail of the animal, forming a large pad on each side of the lateral muscles. This organ was much more developed in *Raia Batis* than in any of the other forms of Ray, and less so in *R. clavata*. The minute structure of the organ was described as consisting of numerous septa running in the longitudinal direction of the organ and forming cones, in the following manner, with intermediate septa running in an opposite direction. The spaces within the smaller septa were filled with a gelatinous matter, which the author described as similar to the gelatinous matter



in the electrical organs of the torpedo and other electrical fishes. The nerves for the supply of these organs were derived from the eighth pair or great lateral nerve, and the terminal filaments formed large regular loops which were suspended in the gelatinous matter.

Dec. 16.—1. "On a possible Explanation of the Adaptation of the Eye to Distinct Vision at different distances." By Professor Forbes.

The author stated that the crystalline lens is loosely suspended amidst the fluids of the eye, which are capable of conveying a uniform pressure to all parts of its surface. This pressure is the result of the action of the recti muscles upon the exterior of the sclerotic coat of the eye-ball, and is communicated to every part of its contents. The lens consists of a condensed nucleus surrounded externally by a softer and more gelatinous portion, so that the pressure acting upon the softer and external parts diminishes the vertical diameter of the lens, while that in the axis of vision may be increased, thus increasing the curvature of the refracting surfaces and shortening the focus.

2. "Notice of an Ancient Beach near Stirling." By Charles Maclaren, Esq.

This beach consists of a terrace of stratified sand and gravel about two miles in length, extending from the foot of Abbey Crag westward to Lecropt Church. It is nearly level on the top, which is elevated about 85 feet above the low alluvial plain called the Carse of Stirling. Adding 20 or 25 feet for the height of this plain above the Forth at Stirling, the elevation of the terrace above the level of high tide will be about 110 feet. The breadth of the terrace is about 200

feet at Lecropt Church, about 900 feet at Airthrey Mineral Well, and nearly half a mile at Airthrey Castle. Several openings have been cut in it by streams or other agents. The preservation of this portion of the ancient sea-bottom may be attributed to the high trap hill of Abbey Crag at its east end, which had protected it from the action of the tide when the sea covered the Carse. A remnant of another terrace at a corresponding level is found at the opposite side of the Carse, two miles southward, near Whitehouse Farm, and small portions of a terrace fifty feet lower are found at Stirling Castle and near Causeyhead.

January 6, 1845.—1. "Further Remarks on the Electrical Organs of the Rays." By Dr. Stark.

2. "Observations on the same subject." By John Goodsir, Esq.

Mr. Goodsir stated that he had examined the part described by Dr. Stark. It was, as he had suspected, the posterior part of the middle mass of the caudal muscles. The texture of this part differs remarkably from the muscular; it consists of numerous compartments formed by the aponeurotic septa of the muscle. Each compartment contains next its walls a rich festooned arrangement of nervous loops, these loops being generally united three by three; the sling of each loop is enlarged and contains one or more nucleated corpuscles, the limbs passing back into nervous tubes of the usual size. With these nervous loops, blood-vessel loops similarly enlarged are intermixed. The centre of each compartment contains a gelatinous mass applied externally to the nervous loops, and in its interior containing a vacant space. The gelatinous mass consists of areolæ formed by bars passing in all directions: these bars are thickest where they meet one another: they consist of a series of nucleated cells, which are plump and gelatinous in appearance, and much larger at the points of junction of the bars. These larger cells Mr. Goodsir considers as the germinal spots of the texture. The bars, and consequently the whole arrangement of the gelatinous mass, appear to be covered by a membrane presenting a most remarkable appearance,—a series of grooves or lines, the general direction of which is parallel to the bars, but generally slightly inclined. These grooves resemble the grooves or lines of mother-of-pearl, or the groovings on the dermal plates of some of the older fossil fishes.

Mr. Goodsir concluded by stating that this organ had the general appearance of an electrical organ, but that the evidence deduced of its electrical properties appeared to him to be insufficient.

ZOOLOGICAL SOCIETY.

June 11, 1844.—George Gulliver, Esq., in the Chair.

"On the Blood-corpuscles of the Two-toed Sloth, *Bradypus didactylus*, Linn.," by George Gulliver, F.R.S.

From an observation which I have lately made, it results that the Two-toed Sloth is one of the very few animals that has blood-discs